GOVERNMENT OF INDIA
SPACE
LOK SABHA

UNSTARRED QUESTION NO:3476
ANSWERED ON:07.12.2016
Scramjet Engine
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Will the Minister of SPACE be pleased to state:

(a) whether ISRO has successfully demonstrated air breathing propulsion system using scramjet engine technology;
(b) if so, the details thereof;
(c) the total budget expenditure for the project;
(d) whether with this engine, ISRO can reduce the cost per kg. of payload; and
(e) if so, the details thereof?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG & PENSIONS AND IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH):

(a) & (b)
The first experimental mission of a sub-scale Scramjet engine, towards the realization of an Air Breathing Propulsion System, was successfully conducted on August 28, 2016 (at 0600 hrs IST) from Satish Dhawan Space Centre, Sriharikota. Various flight events, namely, burn out of booster rocket stage, ignition of second stage solid rocket, functioning of Scramjet engines, followed by burn out of the second stage took place exactly as planned. With this experimental flight, critical technologies such as ignition of air breathing engines at supersonic speed, holding the flame at supersonic speed, air intake mechanism and fuel injection systems have been successfully demonstrated.

(c) The total cost incurred towards carrying out the first experimental mission of the Scramjet engine is ` 8 Crores.

(d) No Madam. The Scramjet engine, used in the first experimental mission is a scaled down version to demonstrate proof-of-concept.

(e) Scramjet engine technology is a complex technology which is yet to be fully proven worldwide. A series of technology demonstration tests are required before inducting the engine with required thrust into future launch vehicles. The technology will be useful only during the atmospheric phase of the flight of launch vehicle and will benefit in bringing down the cost of access to space, by reducing the need of carrying the oxidizer along with the fuel.

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